

CLAIMS

1. Pressure sensor with an integrated structure (30, 30', 30'') comprising:

a silicon die (11), having an upper edge (28), an inner face (23), and an outer face (24) on which piezoresistors (21) are mounted,

a support (33, 133, 233) having an upper surface (37, 137, 237), and a seat (34, 134, 234) suitable for containing the die (11),

a container (35) suitable for implementation in such a way as to put the die (11) in contact with the fluid the pressure of which has to be measured,

characterized in that said die (11) is integrated in said seat (34, 134, 234), made in the thickness of the support (33, 133, 233).

2. Pressure sensor with integrated structure (30, 30', 30'') according to claim 1:

characterized in that the seat (34, 134, 234) passes through the support (33, 133, 233).

3. Pressure sensor with integrated structure (30, 30', 30'') according to claims 1 and 2:

characterized in that a step (43) is made on the inner surface of the container (35), enabling improved gluing of the support (33, 133, 233).

4. Pressure sensor with integrated structure (30, 30', 30'') according to any of the previous claims:

characterized in that the upper edge (28) of the die (11) is substantially on the same plane as the upper surface (37, 137, 237) of the support (33, 133, 233).

5. Pressure sensor with integrated structure (30, 30', 30'') according to any of the previous claims:

characterized in that the inner face (23) of the die (11) is in contact with the fluid the pressure of which has to be measured.

6. Pressure sensor with integrated structure (30, 30', 30'') according to any of the previous claims:

characterized in that on the inner face (23) of the die (11), in contact with the fluid to be measured, is a layer of protection made from chromium, tantalum, silicon carbide alloys.

- 5 7. Pressure sensor with integrated structure (30') according to any of the previous claims:

characterized in that in the vicinity of the upper surface (137) of the support (133), on the inside of the seat (134), a step (138) is made that runs along the edge of the seat (134) itself.

- 10 8. Pressure sensor with integrated structure (30') according to claim 7:

characterized in that the die (11) is assembled in such a way that the upper edge (28) of the die (11) is in abutment with the step (138).

9. Pressure sensor with integrated structure (30') according to claims 7 and 8:

15 **characterized in that** the surface of the part of the step (138), that is in contact with the upper edge (28) of the die (11), is less than the surface of the upper edge (28) itself.

10. Pressure sensor with integrated structure (30'') according to claims from 1 to 6:

20 **characterized in that** in the vicinity of the lower surface (236) of the support (233), on the inside of the seat (234), a step (238) is made that runs along the edge of the seat (234) itself.

11. Pressure sensor with integrated structure (30'') according to claim 10:

characterized in that the upper edge (28) of the die (11) is substantially on the same plane as the upper surface (237) of the support (233).

12. Pressure sensor with integrated structure (30'') according to claims 10 and 11:

25 **characterized in that** the die (11) is assembled in such a way that its outer face (24) is in abutment with the step (238).